

One in Four Patients with Severely Elevated Cholesterol Have No Documented Lipid-Lowering Medication

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Key Findings:

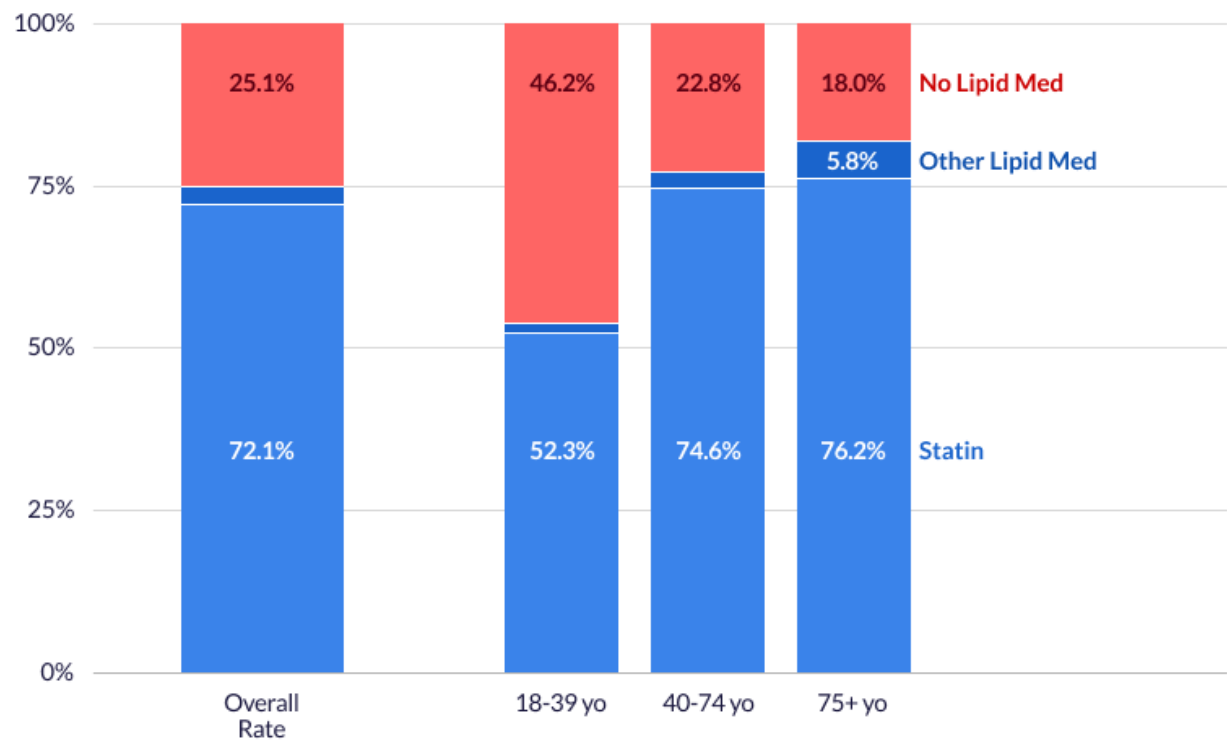
- Among adults with an LDL cholesterol test result of 190 mg/dL or higher, 25.1% had no documented lipid-lowering medication.
- Adults under age 40 with an elevated LDL were the least likely to have a documented lipid-lowering medication, with 46.2% without one documented.
- Patients with a history of myocardial infarction (MI), stroke, or type 2 diabetes were the most likely to have documented lipid-lowering medications. Only 3.4%, 7.1%, and 9.2%, respectively, did not.

Statins are a commonly recommended lipid-lowering therapy for the prevention of atherosclerotic cardiovascular disease (ASCVD), particularly for patients with severe hyperlipidemia, also known as high cholesterol, defined as an LDL cholesterol test of 190 mg/dL or greater.¹ Guidelines from the American College of Cardiology (ACC) and the American Heart Association (AHA) recommend high-intensity statins for all adults with an LDL level of 190 mg/dL or higher to reduce the risk of cardiovascular events.¹ Despite these clear recommendations, use of statin therapy remains much lower than recommended, with prior studies showing that less than 50% of eligible patients receive appropriate lipid-lowering treatment.²

To understand how clinical practice compared to the guidelines for lipid-lowering medication prescribing in recent years, we studied 763,498 patients with an LDL test result of 190 mg/dL or higher between January 1, 2019, and February 12, 2023, and an outpatient visit at least two years later. We grouped patients by the type of lipid-lowering medication they had documented before or within two years following their LDL test.

We found that 25.1% of patients did not have any lipid-lowering medications documented, as seen in Figure 1. Lipid-lowering medication documentation was particularly low among younger adults, with 46.2% of those aged 18 to 39 not having one documented, compared to 22.8% in those aged 40 to 74 and 18.0% in those aged 75+. Statins were the most common type of lipid-lowering medication documented.

Lipid-Lowering Medication Rates Among Patients with Severe Hyperlipidemia by Age

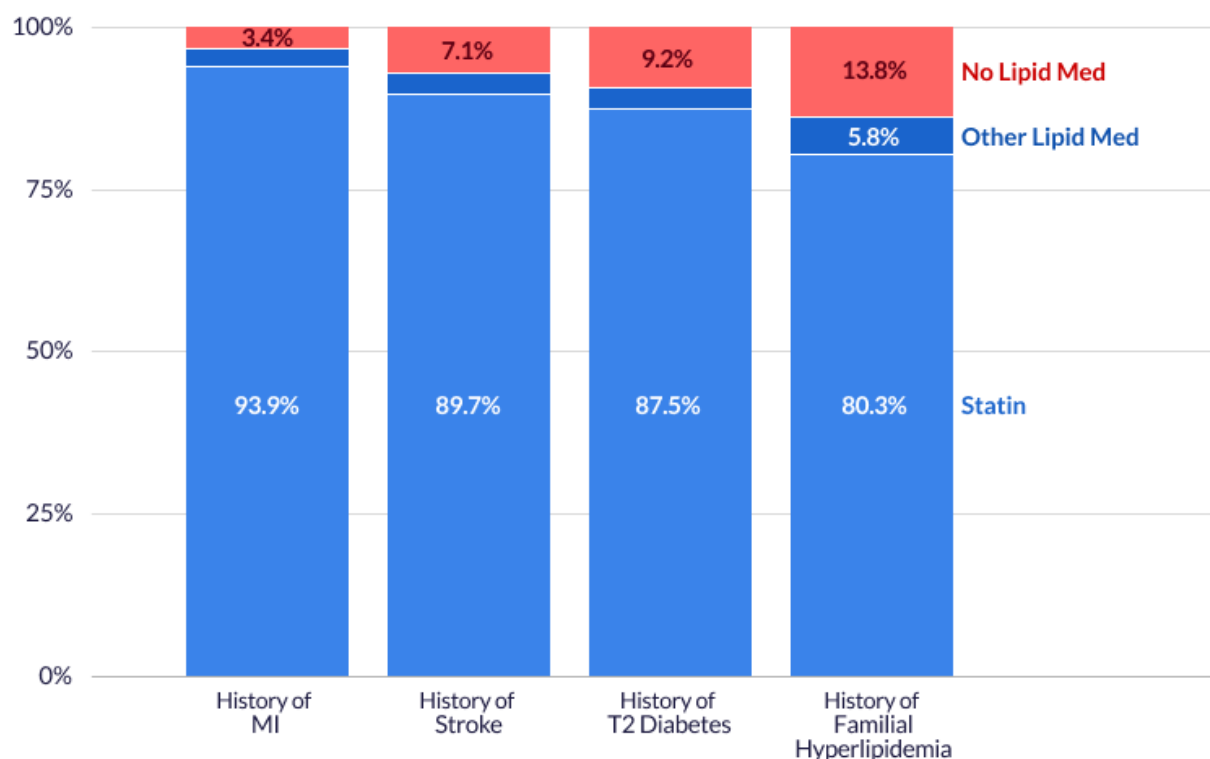


N=763,498 patients "Lipid-Lowering Medication Rates Among Patients with Severe Hyperlipidemia by Age," 2025. EpicResearch.org

Figure 1. The rate of patients with an LDL ≥ 190 mg/dL and a lipid-lowering medication documented by age.

Next, we evaluated lipid-lowering medication rates in patients who were at increased risk for cardiovascular events. We found that those with a history of MI, stroke, or type 2 diabetes had the lowest rates of no lipid-lowering medications at 3.4%, 7.1%, and 9.2%, respectively. Patients with familial hyperlipidemia had lipid-lowering medications documented more often than the overall population, at 13.8% with no documented lipid-lowering medication.

Lipid-Lowering Medication Rates by Increased Cardiovascular Risk Factor



N=763,498 patients

"Lipid-Lowering Medication Rates by Increased Cardiovascular Risk Factor," 2025. EpicResearch.org

Figure 2. The rate of patients with an LDL ≥ 190 mg/dL and a lipid-lowering medication documented by increased cardiovascular risk factor.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 296 million patient records from 1,700 hospitals and more than 39,000 clinics from all 50 states, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions. Graphics by Brian Olson.

References

1. Grundy SM, Stone NJ, Bailey AL, et al. 2018
AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines [published correction appears in Circulation. 2019 Jun 18;139(25):e1182-e1186. doi: 10.1161/CIR.0000000000000698.] [published correction appears in Circulation. 2023 Aug 15;148(7):e5. doi: 10.1161/CIR.0000000000001172.]. Circulation. 2019;139(25):e1082-e1143. doi:10.1161/CIR.0000000000000625
2. Navar AM, Wang TY, Li S, et al. Lipid Management in Contemporary Community Practice: Results from the Provider Assessment of Lipid Management (PALM) Registry. Am Heart J. 2017;193:84-92. doi:10.1016/j.ahj.2017.08.005.

Data Definitions

Term	Definition
Study period	1/1/2019 to 2/12/2025
Study population	Adult patients with: - An LDL test result that was 190 mg/dL or higher during the study period - At least one Office Visit, Well Child, Walk-in, or Hospital Outpatient Visit encounter at least two years after their most elevated LDL test result
Exposures	Age 18-39 40-75 75+ History of MI: ICD-10-CM code I21* or I22* History of stroke: ICD-10-CM code I60*, I63*, I69.3*, Z86.73 or G45.9 History of type 2 diabetes: ICD-10-CM code E11*
Outcomes	Patients fell into the first bucket they qualified for based on the type of lipid-lowering medication they had documented before or within two years following their LDL test: - A statin medication - A non-statin lipid-lowering medication - A statin allergy/reaction documented or no lipid-lowering medication documentation
LDL	A lab result with LOINC code 13457-7, 18262-6, or 2089-1 The highest and lowest 0.1% of values were excluded, which left values between 13 and 261 mg/dL
Statin	A prescription or patient-reported medication with a pharmaceutical subclass of "Antihyperlipidemic - HMG CoA Reductase Inhibitors (statins)" or "Antihyperlipidemic - HMG CoA Reductase Inhibitor and Niacin Comb" or a generic name of rosuvastatin calcium, simvastatin, atorvastatin calcium, pravastatin sodium, niacin/lovastatin, lovastatin, or fluvastatin sodium
Non-statin lipid-lowering medication	A prescription or patient-reported medication pharmaceutical subclass of "Antihyperlipidemic - Bile Acid Sequestrants," "Antihyperlipidemic - Fibric Acid Derivatives," "Antihyperlipidemic - Selective Cholesterol Absorption Inhibitor," "Antihyperlipidemic - PCSK9 Inhibitors," "Antihyperlipidemic - ATP-Citrate Lyase (ACLY) Inhibitor," or "Antihyperlipidemic - Omega-3 Fatty Acid Type" or a generic name of alirocumab, evolocumab, inclisiran sodium, bempedoic acid, icosapent ethyl, omega-3 acid ethyl esters, niacin, cholestyramine, cholestyramine (with sugar), cholestyramine/aspartame, or cholestyramine/saccharin sod
Statin allergy/reaction	A documented reaction to any of AMLODIPINE-ATORVASTATIN, ASPIRIN, BUFFERED-PRAVASTATIN, ATORVASTATIN, ATORVASTATIN CALCIUM, ATORVASTATIN CALCIUM (PROPYLENE GLYCOL SOLVATE), ATORVASTATIN MAGNESIUM, BARSTATIN, CERIVASTATIN, CERIVASTATIN SODIUM, CILASTATIN, CILASTATIN SODIUM, EZETIMIBE-ATORVASTATIN, EZETIMIBE-ROSUVASTATIN, EZETIMIBE-SIMVASTATIN, FLUVASTATIN, FLUVASTATIN SODIUM, IMIPENEM-CILASTATIN, IMIPENEM-CILASTATIN-RELEBACTAM, LOVASTATIN, LOVASTATIN (BULK), NIACIN-LOVASTATIN, NIACIN-SIMVASTATIN,

PENTOSTATIN, PITAVASTATIN, PITAVASTATIN CALCIUM, PITAVASTATIN MAGNESIUM, PITAVASTATIN SODIUM, PRAVASTATIN, PRAVASTATIN SODIUM, ROSUVASTATIN, ROSUVASTATIN CALCIUM, ROSUVASTATIN ZINC, RX BALANCE STATIN, SIMVASTATIN, SIMVASTATIN (BULK), SITAGLIPTIN PHOS-SIMVASTATIN, SOMATOSTATIN, SOMATOSTATIN ACETATE, STATINS-HMG-COA REDUCTASE INHIBITORS, TRIAMSTATIN, or TRI-STATIN II

Table 1: Lipid-Lowering Medication Rates

LDL Ranges	Population	Statin	Other Lipid-Lowering Med	No Lipid Med
190+	Overall	72.1%	2.7%	25.1%
190+	Ages 18-39	52.3%	1.5%	46.2%
190+	Ages 40-74	74.6%	2.6%	22.8%
190+	Ages 75+	76.2%	5.8%	18.0%
190+	History Of MI	93.9%	2.7%	3.4%
190+	History Of Stroke	89.7%	3.2%	7.1%
190+	History Of T2 Diabetes	87.5%	3.3%	9.2%
190+	History Of Familial Hyperlipidemia	80.3%	5.8%	13.8%